W. D. Gann
Mathematical Formula for Market Predictions

The Master Mathematical Price Time and Trend Calculator

by W. D. Gann

Important note:
This file, done years ago, is a combination of two versions of this course. Mixing was not the right thing to do, and at some point the Gann Study Group hopes to provide the two versions in individual scans.

W.D. GANN MATHEMATICAL FORMULA FOR MARKET PREDICTIONS

THE MASTER MATHEMATICAL PRICE TIME AND TREND CALCULATOR

This chart is made on transparent plastic so that you can place it over a daily, weekly, or monthly high or low chart and see at a glance the position on the time and price based on the geometrical angles. It is designed to give QUICK ACCURATE EASY CALCULATIONS: SAVE TIME AND PREVENT ERRORS.

The square of 12 is always important in working out time periods because there are 12 months in a year. The square of 144 is the GREAT SQUARE and works better than any other square both for TIME AND PRICE because it contains all of the squares from 1 to 144. This chart is divided up into sections of 9 both for time and price because 9 is the highest digit. Nine spaces on the daily chart equals 9 days, 9 weeks or 9 months in time periods and 9 equals 9¢ on grains, 9 points on stocks or 90 points on cotton on the daily high and low chart.

One column in the square of 144 contains 144. This would equal $144 on grain, 144 points on stocks or using a scale of 10 points to 1/8 inch it will equal 1440 points on cotton.

MASTER 144 SQUARE CONTAINS 324 square inches and each square inch contains 64 units which gives 20,736. This is 20,736, weeks or months and the proportionate parts of this are used for the measurement of time and price because this is the great cycle.

THE GREAT CYCLE OF THE SQUARE OF 144.

The time period of this square is 20,736 days, weeks or months. One-half is 10,368 days. One-fourth is 5,184 days. One-eighth is 2,592 days. One-sixteenth is 1,296 days. One-thirty-second is 648 days and the one-sixty-fourth is 324 calendar or market days. 1/128 is 162 days and 1/256 is 81 days or the square of 9.

WEEKLY TIME PERIODS.

THE GREAT CYCLE in weeks is 2962 and 2 days and 1/2 of this period is 1481 weeks and 1 day. One-fourth is 740 weeks. One-eighth is 370 weeks and 2 days. One-sixteenth is 185 weeks, 1 day. One-thirty-second is 92 weeks, 4 days and 1/64 is 41 weeks, 2 days.

MONTHLY TIME PERIODS.

THE GREAT CYCLE in months is 681 months and 23 days. One-half of this is 28 years, 9 months and 23 days. One-fourth is 14 years, 5 months and 8 days. One-eighth is 7 years, 2 1/2 months. One-sixteenth is 43 months and days. The weekly and monthly time periods from any major high and low and be checked to determine the future trend.

THE MASTER NUMBERS:

The Master Numbers are 3, 5, 7, 9 and 12. The No. 9 and its multiple is the most important because 9 digits added together equal 45. The next number of greatest importance is 7, the number mentioned more times in the Bible than any other number. There are 7 days in the week and 7 calendar days as well as 5 market days, and their multiples should be carried on your Daily, Weekly and Monthly Charts. The square of 7 is 49, which is a very important time period. The 2nd square of 7 is 98 and the third square of 7 is 147 and the fourth square of 7 is 196 and 196 is also the square of 14. The next number in importance is No. 5 which is the balancing number between 1 and 9. The square of 5 is 25 and the second square of 5 is 50 which is just 1 over the square of 7 making 49 to 50 very important for a change in trend. Three squares of 5 is 75 and 5 squares of 5 is 100 and 100 is the square of 10, which is also important for changes.

The No. 3 is mentioned in the Bible next to the No. 7 and 3 is important because 3 x 3 equals 9, the square of 3, and it is the first old number that forms a square greater than itself. Three must be used in every way possible. 3 x 7 equals 21, 3 x 5 equals 15, 3 x 9 equals 27 and 3 x 10 equals 36, very important because it is the square of 6. The No. 12 is also spoken of in the Bible many times and is of great importance. Jesus selected 12 deciples. There are 12 months in the year, and 12 signs of the Zodiac. The important 12's in the square of 144 are 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132 and 144. These are all important for both time and price in days, weeks and months.

Referring to the No. 9, 7 x 9 is 63 and is of great importance because the square of 8 is 64, therefore, around 63 to 64 is very important to watch the change in trend. 7 x 12 is 84 and this is of very great importance and the number next to this is 90, which is 10 x 9 and 90 is 1/4 of the circle, which is very important for time and price changes. Next in importance is 9 x 12 which is 108 of 3/4 of 144.

The importance of the circle of 360 deg. must not be overlooked in connection with the square of 144 because the proportionate parts of the circle agree with the parts of 144. 2 1/2 times 144 equals 360 and 1 1/4 times 144 equals 180, 1/2 of the circle, and 90 is 5/8 of 144. 9 is 1/16 of 144, 18 is 1/8, 27 is 3/8, 36 is 1/4, 45 is 5/16 and always very important for time and price changes and for resistance levels. 48 is 1/3 of 144 and 54 is 3/8 and 63 is 7/16, 72 is 1/2 of 144, 81 the square of 9, is 9/16 of 144 and 90 is 5/8, 99 is 11/16, 108 is 3/4, 117 is 13/16, and 126 is 7/8 and 135 is 15/16 of 144. These are the most important in the square of 12 and should be watched closely when time periods in days, week or months reach these points on the Master Calculator. Remember that you should always watch the Daily Chart for the first indication of the change in trend and at the same time look at the position on the Weekly Chart or 7 day time periods which is next in importance. The Monthly Chart is of the greatest importance for changes in the main trend.

THE IMPORTANCE OF 3 AND 5.

The movement in PRICE and TIME whether on a Daily, Weekly or Monthly chart has three important points, the PRICE, the TIME AND VOLUME of sales, the PITCH or TREND which is the geometrical angle which shows whether time is influencing and driving prices up or down on a slow angle or an acute fast moving angle. There are also four factors that influence prices, PRICE, TIME AND VOLUME AND VELOCITY. Time is the most important factor because when time is up volume increases and the velocity or speed of the market increases and the PITCH or TREND on the angles moves up faster or down faster.

There are three other important points to consider on a Daily, Weekly or Monthly High and Low Chart. These are the LOW PRICE, the HIGHEST PRICE and the RANGE or 1/2 between the high and the low.

FIVE FACTORS FOR TIME AND PRICE

These are high, low, halfway point, opening and closing prices, The trend is indicated by the closing price, especially when the market is very active. If the price closes above the half way point or near the high, the trend is up. If it closes below the half way point or near the low, the selling is greater than the buying and the trend is down, at least temporarily. In connection with the Master Time and Trend Calculator apply all of the rules with the Master Time Factor and geometric angles.

STRONGEST POINTS FOR TIME AND PRICE RESISTANCE.

In using the Master Square of 144, the strongest points are 1/4, 1/3, 2/3, 3/8, 1/2, 5/8, 3/4, 7/8 and the complete square of 144.

The points where the most angles cross are the strongest for resistance in PRICE and TIME.

TRIANGLE POINTS.

The triangle points or where the green angles cross are the most important These are 72, 144, 36, 48, 96, 108 and of course, 72, and at the end of the square of 144 at the top and the bottom.

SQUARES IN THE SQUARE OF 144.

These squares where the angles cross are of great importance for time and price resistance. These are 36, 45, 54, 63, 72, 90, 108, and at the top end of the square of 144 at the top and the bottom. When the price is at a point equal to 36 and the time periods in days, weeks or months is at 36, TIME and PRICE is SQUARE and it is important to watch for change in trend. With the square of 144 you can get any square from 1 to 144. Suppose you want to get the square of 72; you move across to 72 for time and if the price is at 72 moving up on the chart, PRICE and TIME have balanced, or squared out, and are at the 45 degree angle and at the half way point the Master Price, Time and Trend Calculator.

WHERE TO WATCH FOR CHANGES IN TREND

Most changes in trend occur when the TIME PERIODS are at one-half of the square of 144 and at the end of a square or at the 1/3, 2/3, 1/4 and 3/4 points in the square of 144; you must always watch the square in time of the HIGHEST PRICE and the MINOR HIGHS and LOWS, also the square in TIME of the LOWEST PRICE and the SECOND OR THIRD higher bottom, and also the time required to square the Range and where this square works out in the Master Square of 144.

EXAMPLE: The lowest price that wheat ever sold was 28¢ per bushel, In March, 1852, therefore, every 28 months would square the lowest price. The highest price that wheat ever sold for was in May 11, 1917 when the May option sold at 325, therefore, it would require 325 months to square the highest price. The lowest price that the May option ever sold was 44¢, therefore, it would require 44 months in time to square the low price. The range between 44 and 325 is 281¢ which would require 281 months, 281 weeks or 281 days to square the range. You would look on the Master Chart and see that 2 squares of 144 equal 288, therefore, you would watch for a change in trend between 281 and 288 or near the end of the second square of 144. 7 x 44, the extreme low, equals 308, therefore, 6 1/2 times 44 would equal 286, which is within two points of the end of the square of 144 or the end of the second square making 286 an important time period to watch for a change in trend. In squaring the range of 325, the highest price for May wheat would be 2 squares of 144 and 37 over, therefore, when the time reached 36 days, weeks or months in the Master Square of 144 you can see that resistance would be met because moving up the time period of 136 you see that the 45 deg. angle moving down from 72, which is the INNER SQUARE and the line drawn across from 36 on the price scale crosses at 36. In this way you can see that the Master Chart would indicate a resistance in time and price corresponding with the square of the highest price, the lowest price, and the Range. All other time periods from a high price, low price, or the range of any commodity or of the stock averages or individual stocks should be worked out in this same way.

You will succeed in using the Master Mathematical Price, Time and Trend Calculator by going over the charts and laying the calculator over them and working out past history. In this way you will learn just how it works and prove to yourself the great value of the Master Calculator.

HOURLY TIME PERIODS

When Markets are very active and making a wide range in price, it is important to keep an hourly High and Low Chart, just the same as you keep the Daily High and Low Chart and the Hourly Chart will give the first change in trend.

There are 24 hours in a day, therefore, 6 days are required to pass through 144 and a total of 864 days to pass through the square of 144.

At the present time, all exchanges are open 5 days a week with the exception of holidays and most of them are open 5 hours each day, therefore, it will require 28 days and 4 hours to pass through 144 at the rate of 5 hours per day and 5 days per week.

GREAT YEARLY TIME CYCLE:

To pass through the square of 144, which equals 20,736, it requires 56 years, 9 months and 23 days, which is very important time cycle. Next in importance is 1/2 of this time period which is 28 years, 5 months and 8 days and 1/4 which is 14 years, 2 months and 19 days. The 14 year cycle is always very important because it is 2 seven year periods. 14 years equal 168 months and 169 months is the square of 13 making it very important for a change in trend and this is also an important time resistance point.

1/8 of the Great Cycle is 7 years, 1 month and 10 days and is quite important. 1/16 is 42 months and 20 days, 1/32 is 21 months and 10 days. This is an important time period becuase it is close to 22 1/2 months which is 1/16 of the circel of 360 degrees.

NINE SPACES AND NINE TIME PERIODS:

The chart being divided up into 9 sections gives all the squares of 9 for price resistance of time resistance which, as referred to above is 9¢ on the Daily Chart for grains and the same for Weekly and Monthly Charts; that is, 1¢ to each 1/8 inch. For different commodities, different scales are used. (See Speical Instructions for the different commodities.)

The Chart being divided up into 9 sections gives a 16 the squares of 9 for rpice resistance or time resistance which, as referred to above, is 90 points of the Daily Chart, 135 on the Weekly Chart, and 270 on the Monthly and 2880 on the 20 point scale and 9 spaces equal 180 points.

The angles in red are all drawn on the squares of 9. The Inner Square of 450 is drawn from 72 because 72 is 1/2 of 144. These angles come out at 72, 144 and 72.

The straight lines are in green and are 1/3 of the square of 144 in price or time.

GREEN ANGLES:

The green angles are the angles of 2 x 1 which up two spaces or 2 points in one period of the time. The other angle below the 450 angle is the angle of 1 x 2 which requires 2 time periods to move up 1 space or 1¢ per bushel on grains for each time period of 1 day, week or 1 month. These angles move down from the top at the rate of 2 points or 2 spaces per time period or at the rate of 1/2 space, 1/2 point or 1/2¢ per time period. The distance that the gree angles and the red angles are apart determines how far prices can advance or decline.

When the market enters the INNER SQUARE it is important for a change in trend and time angles and Position in the square tell at the time it entered whether the price is going up or down. Also when price breaks below a 45° on the INNER SQUARE it shows weakness in proportion to the time from high or low price.

WHEN TO START A NEW SQUARE:

When the time period of the Daily, Weekly or Monthly Charts has moved 144 you begin a new square. But to get the position you simply move the Master Square over to 144 and place it over the chart to get the position in the next squar.

STRONGEST AND WEAKEST POINTS:

Where the greatest number of angles cross or bisect each other in the square of 144 are the points of greatest resistance, such as where the 25 and 2 x 1 angles cross each other.

Study and practice on past action of the market and you will soon learn how to determine the trend very quickly by using the Master Chart.

HOW TO USE THE MASTER SQUARE OF 144:

Follow all rules on angles as given in the Master Forecasting course.

Place this chart at the bottom or 0 on the Daily, Weekly or Monthly Chart or place the bottom of the chart on the low price or SQUARE of the HIGH PRICE, The LOW PRICE, and the square of the RANGE and show where time and price balances.

When you figure the halfway point of the extreme high or the halfway point of the range, place either the top or the bottom of the chart on the halfway point and it will give the correct POSITION and TREND. However, if you will place the CENTER, or 72, on the halfway point in PRICE you will then geg the correct position in time and can see how the price is working out with time in the MASTE SQUARE of 144 and the INNER SQUARE which starts from 72, the gravity center of 1/2 point of the square.

CALENDAR DAYS AND MARKET DAYS:

For any kind of a chart, we move over one space for each unit of time. Therefore, it would require 144 market days or 144 calendar days to complete the square of 144. When prices pass out of one square into another, a change in trend usually takes place and the periods and geometrical angles on this MAST CHART tell you which way the trend is going to change.

LEAP YEARS:

In calculating time periods to get exact number of days and weeks the LEA YEAR must be figured and one extra day added. From 1864 the Leap Years were as follows: 1868; 1872; 1876; 1880; 1884; 1888; 1892; 1896; 1904; 1908; 1912; 191 1920; 1924; 1928; 1932; 1936; 1940; 1944; 1948 and 1952.

POSITION WITH MASTER SQUARE:

To get the position with the MASTER SQUARE of 144 lay it over the Daily, Weekly or Monthly and start from extreme low, extreme high, 0 or 1/2 point of the range or 1/2 of the high selling price. You can also place the top of the chart at the high selling price. In this way you can get the correct time and positions or angles at a glance.

Place MASTER CALCULATOR on January to get twelve year periods, each month same way.

You should have all time periods from important highs and lows calculated in days, weeks and months in order that you can look them up quickly on the MASTER CHART.

With all time periods brought up to date in this way, you can get the position on the MASTER CHART and the indicated trend without looking at a daily, weekly or month chart. You should have the time periods in months from every important top and bottom.

With the MASTER SQUARE of 144, your work will be cut down but you must learn to practice and bring up all time periods and study the MASTER SQUARE and learn how to use it to get tops and bottoms accurately. Work and practice will bring PRECISION and PROFITS. I have done my part. It is now up to you to work hard and if you do, your success is assured.

HOW TO PLACE THE MASTER CHART SQUARE OF 144 ON CHARTS

To get correct positions on any of your charts, daily, weekly or monthly, you must place the MASTER CHART OVER THEM correctly. The top of the MASTER CHART has Price and Time Chart by W. D. Gann on it. Always place this on the bottom of your chart unless it is where you move up to a higher price when you place it at 72 or bottom market "Bottom" 0.

Place the MASTER CHART at 0 on any of your other charts or at a low point on the same date of any high or low point. Place the MASTER CHART at 72 which is 1/2 of 144 on any one-half point of the price range of 1/2 of the high selling price.

Always place the MASTER CALCULATOR on all previous high and lows to get changes in trends and price resistance. Never overlook the extreme high and low price. Also most important 1/2 of high to low and 1/2 of the highest price any commodity or stock ever sold.

TIME PERIODS AND PRICE RESISTANCE

The circle of 360º is most important for time cycles and price resistance. First, we divide the circle by 2 and get 180 which is one-half and is most important for time or price in days, weeks or months. Next we divide the circle by 3 and get the triangle points of 120, 240, and 360. Third, we divide the circle by 4 which gives 90, 180, 270, and 360, which are the squares and most important.

Divide the circle by 8 which gives 8 periods of 45 degree angles which are 45, 90, 135, 180, 225, 270, 315, and 360. Next in importance is to divide the circle by 16 which gives the angles of 22 1/2 degrees. We divide the circle by 32 and get the angles and time periods of 11 1/4 degrees and their multiples. Divide the circle by 64 which gives 5 5/8 degrees and their multiples.

The table below shows each division of 5 5/8 and we run down to 16 in the column which equals 90 or 1/4 of the circle and 16 is 1/4 of 64. This arrangement reading across gives each of the multiples and the figures between the heavy lines are among the ones which are the most important.

Table of 64th of the Circle

1.	5 5/8	17.	95 5/8	33.	185 5/8	49.	275 5/8
2.	11 1/4	18.	101 1/4	34.	101 1/4	50.	281 1/4
3.	16 5/8	19.	106 7/8	35.	196 7/8	51.	286 7/8
4.	22 1/2	20.	112 1/2	36.	202 1/2	52.	292 1/2
5.	28 1/8	21.	118 1/8	37.	208 1/8	53.	298 1/8
6.	33 3/4	22.	123 3/4	38.	213 3/4	54.	303 3/4
7.	39 3/8	23.	129 3/8	39.	219 3/8	55.	309 3/8
8.	45	24.	135	40.	225	56.	315
9.	50 5/8	25.	140 5/8	41.	230 5/8	57.	320 5/8
10.	56 1/4	26.	146 1/4	42.	236 1/4	58.	326 1/4
11.	61 7/8	27.	151 7/8	43.	241 7/8	59.	331 7/8
12.	67 1/2	28.	157 1/2	44.	247 1/2	60.	337 1/2
13.	73 1/8	29.	163 1/8	45.	253 1/8	61.	343 1/8
14.	78 3/4	30.	168 3/4	46.	258 3/4	62.	348 3/4
15.	84 5/8	31.	174 3/8	47.	264 3/8	63.	354 3/8
16.	90	32.	180	48.	270	64.	360

The squares from 1 to 10 are important to watch for time and price resistance as they are important degrees in the circle. These are: 1 - 4 - 9 - 16 - 25 - 36 - 49 - 64 - 81 - 100 - 121 - 144 - 169 - 196 - 225 - 256 - 289 - 324 and 361, which is the square of 19.

Divide the circle by 6 and we get two resistance and time periods which are not contained in the other table. These are 60 and 300.

It is also very important to divide the circle by 12 because there are 12 months in the year and this works out accurately for time periods. The following are the degrees not shown in the above table: 30 - 150 - 210 - 330.

Divide the circle by 24 which gives 15 degree periods in longitude and approximately 15 days in time. Because there are 24 hours in a day and the earth makes 1 revolution on its axis in 24 hours these periods are quite important. The following are not contained in the other table: 15 - 75 - 105 - 165 - 195 - 285 - 345.

Under the table of the 64th Circle reading across from left to right the 2nd column is always 90 degrees from the first. Example: The first is 5 5/8 and 17 in the next column is 95 5/8 or a gain of 90. Opposite 33 is 185 5/8 which is 90 from 95 5/8, opposite 49 is 275 5/8 or 90 from 185 5/8.

The column 1 under 8 between the heavy lines is 45 and the next one is 135, 225, and 315 each 90 degrees apart.

At the bottom of column 1 opposite 16 is 90 and reading across is 180, 270, and 360. These figures are all 45 degrees from the figures in column 8 which are the most important for time and price resistance.

To realize the value and importance of these degrees in the circle you take the price of highs and lows and the time periods, expecially in weeks and months and check them over and you will see how well they work out to these important degrees.

Remember you must always figure how many points or cents the prices are up from the extreme low or minor lows and how many cents it is down from the extreme highs or minor highs. Also, how many cents it is above or below the main halfway point or the minor halfway points or gravity centers. You will find that the important halfway points form very close to these natural degrees in the circle.

Example: May Soybeans extreme high 436 3/4, extreme low 67, gives the halfway point at 251 7/8. Look in the table and you find the 45th 64th at 253 1/8. This halfway point is very close. Next 1/2 of 436 3/4 is 218 3/8 and the 39th 64th is 219 3/8, very close to this natural resistance degree. The extreme low of Cash Beans was 44 and the halfway point between 44 and 436 3/4 is 240 3/8. 240 is 2/3 of a circle or a triangle point and 241 7/8 is the 43rd 64th of the circle. 44 the extreme low, was only 1 from 45, the important resistance level. 67, the lowest price May futures ever sold, is within 1/2 point of 67 1/2 which is 12/64 or 3/4 between 0 and 90 and 67 1/2 is halfway between 45 and 90 which was the cause of May beans making lows for 5 years between 67-69 which indicated the big advance that followed as there were triple bottoms between 67-69 in three different years.

Next consider the time periods December 28, 1932, was low on May Beans and December 28, 1947, was 15 years or 180 months which is 1/2 of a circle also 1/2 of the 360 degrees making this a very important time cycle. May beans reached extreme high on January 15, 1948, just 18 days beyond the even 15 year cycle. Check all other time periods and time cycles in the same way and you will find how well they work out in the circle of 360 degrees.

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